REFERENCE MANUAL

Modular Composition System

RULING OPTION

(Addendum)

Part No. 214806-002

SEPTEMBER 1982

FOREWORD

The attached manual(s) describe the configurations and operating procedures of the **Modular Composition System.** Due to the many forms of applications, the recommended procedures should be adhered to.

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Prepared By

Technical Product Support

200 Ballardvale Street

Wilmington, MA 01887

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Introduction

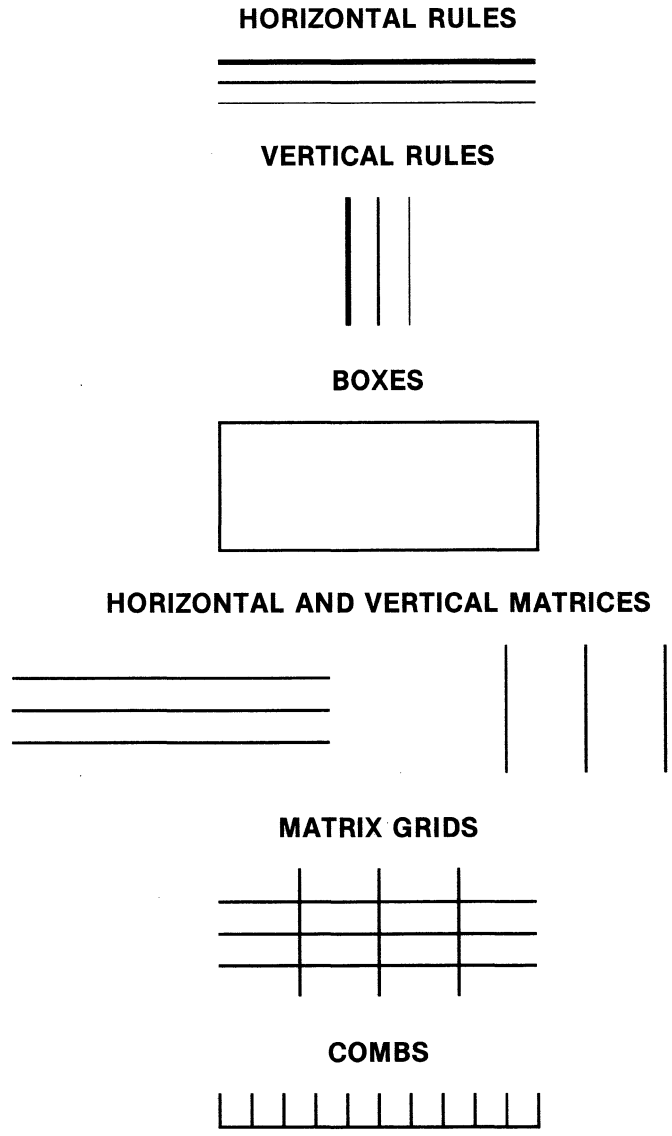
The Modular Composition System Ruling Option provides a method of drawing horizontal and vertical rules, boxes, matrices and combs for use in forms and display advertising. Two types of ruling are used depending on the typesetter; font ruling on the 8200 series and electronic ruling on the 8400 and 8600.

The 8200 Font Ruling Option requires that an MCS Ruling and Pi Font, Section 5413 (Part No. 24412-0552) be installed in the font rack of the photo unit. All ruled structures are made up of several individual rule segments contained on the Ruling Font. The MCS program automatically assembles these segments into the horizontal and vertical rules used in drawing the ruled structures.

The 8400 and 8600 typesetters use electronic ruling and do not need a special font to set rules. The rule segments are electronically drawn on the face of the typesetter's CRT under the control of the typesetter's program. For either type of ruling, drawing a ruled structure is a simple command entry.

Due to hardware and software constraints, the system is incapable of producing the precise one-sixth inch line spacing required by computer or typewriter forms. The system will, however, produce high quality forms designed for hand fill-in quickly and easily.

This manual is organized in the following manner: First a basic overview of common ruling parameters, functions and limitations is presented; second, each individual ruling command is discussed in detail; third, examples of the uses of the various commands are given.



RULE PARAMETERS

In the explanation of ruling commands, the Rule Parameters have the following values:

w is the rule weight. The weight is the thickness of the rule defined in hundredths of a point. For example:

25	¼ point
50	½ point
75	¾ point
100	1 point
275	2¾ point
1800	18 point

Only values of 25, 50 and 75 are valid for rule weights below 1 point.

Rule weights by typesetter.

8400 — 25, 50, 75, 100 - 7200

8600 — 25, 50, 75, 100 - 9600

8200 Series — 25, 50, 100, 200, 300

d.d is the rule depth for vertical rules, matrices, boxes and combs. Depth is specified in points and quarter points in the same manner as all leading commands. The maximum depth is 1008 points.

NOTE: If Multi Column has been initialized and a column depth specified, then the rule depth is limited to the column depth.

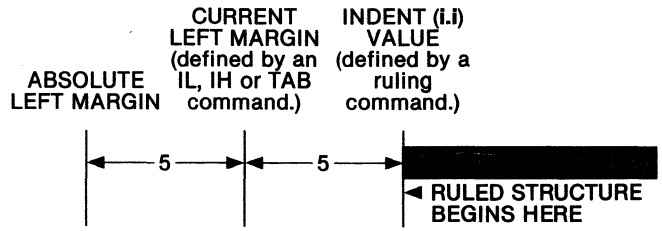
m.m is the horizontal measure of a rule, box, matrix or comb. It is specified in picas and points. This parameter is valid only for the rule command. That is, if the line length is 11 picas and a rule is drawn with m.m specified as 5 picas, the current line length remains 11 picas.

The maximum rule length for the 8400 and 8200 series photo units is 70 picas. The maximum rule length for the 8600 is 68 picas.

i.i is the left margin indent of the ruled structure. It is specified in picas and points. The indent value is used to position rules within the measure and is in addition to any indents in effect at the time the rule is called. (i.e. the indent is in addition to any left indent, hanging indent or tab indent in effect at the time the rule is drawn.)

EXAMPLE:

If an <IL5> command were in effect at the time a rule command was used and the rule command specified a 5 pica indent, the ruled structure would actually start 10 picas from the absolute left margin.


ABSOLUTE LEFT MARGIN
CURRENT LEFT MARGIN (defined by an IL, IH or TAB command.)
INDENT (i.i) VALUE (defined by a ruling command.)
5
5
RULED STRUCTURE BEGINS HERE

This parameter is valid only for the rule and will not affect any indent in effect at the time the rule command is used.

Ruled structures may be horizontally positioned at the left margin or at the indent point only. Rule positioning cannot be accomplished by use of the Quadding or Insert Space commands.

c is the number of vertical columns in a matrix or comb. Maximum value is 99.

r is the number of horizontal rows in a matrix. Maximum value is 99.

COMMAND SYNTAX

Rule parameters are separated by commas. i.e. <DRH w, i.i, m.m>. Commas may be omitted if no parameter is to follow the last entry. If, in the example, the default for weight is to be used, the w may be omitted, but the comma may not, <DRH , i.i, m.m>. If the default for measure is to be used, both the m.m value and the comma following i.i may be omitted, <DRH w, i.i>.

DEFAULTS

Defaults are the values that will be used in drawing a ruled structure if a particular command field is left blank. Following is a list of defaults for the preceding parameters:

w The rule weight must be entered in all ruling commands unless a default weight is specified in the SET RULE PARAMETER command.

d.d The ruled structure depth must be specified in all commands that require a depth unless a default depth is specified in the SET RULE PARAMETER command.

m.m Rule length default is the current line measure.

i.i Indent defaults to the current left margin. An indent other than the left margin may be specified in the SET RULE PARAMETER command. If the <SRP> default is used by omitting the indent value in a rule command, this indent will be in addition to any indent in effect at the time the rule command is used.

c Must be entered.

r Must be entered.

SET RULE PARAMETER

<SRP w, d.d, i.i>

The Set Rule Parameter command defines the default values for weight, depth and indent. Once defined, those parameters may be omitted in the ruling command fields where that particular default value is needed. If the weight and depth are not defaulted in this command, they must be entered in each individual rule command. If indent is not defaulted in this command and is omitted in the rule command, then the current left margin becomes the default indent. The default values cannot be changed except by another <SRP> command.

INITIALIZING RULING

Initializing ruling instructs the photo unit to advance and reverse lead 14 inches, creating a loop of photographic media, preventing possible misalignment of vertical rules due to more tension on the media as the first rule is drawn while pulling the media from the supply box. Two commands are available to initialize ruling:

First, the <MCO> command may be used on systems equipped with the Multi Column Option. Should MCO be initialized using the full MCO command <MCO d.d, t, n>, an error would result when attempting to draw a vertical rule that exceeds the MCO depth limit. In either case ruled structures cannot exceed the 14 inch MCO limit.

For systems not equipped with the Multi Column Option a Ruling initialize command <RLI> has been provided. This command creates the media loop but does not set a 14 inch limit. Care must be exercised not to exceed 14 inches when drawing ruled structures. If a ruled structure is to be drawn that will exceed 14 inches, another <RLI> should be given prior to drawing the structure.

DRAW RULE HORIZONTAL

<DRH w, i.i, m.m>

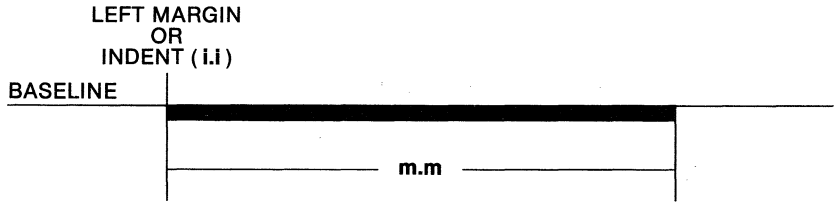
This command draws a horizontal rule starting at the indent (i.i) point or left margin and extending the length of the measure (m.m).

Any indent specified in the command, is in addition to any indent (IL, IH, TAB) in effect at the time. If the indent is not specified, then the rule starts at the current left margin or at the indent point defined in an <SRP> command.

If the measure is not specified, then the line measure in effect at the time becomes the default for rule length. The indent (i.i) and measure (m.m) combined cannot exceed the current line measure.

Horizontal rules begin at and extend downward from the baseline. Upon completion of the rule command copy is positioned at the current baseline and left margin.

Rule indents and measures affect only the rule and do not affect the copy positioning indents or measures in effect when the rule command is used.



NOTE: A six-point rule was used in this example to show rule placement. A six-point rule is not available on 8200 series typesetters.

w = weight in 100ths. of a point
m.m = measure in picas.points
c = no. of vert. columns
d.d = depth in points.¼ points
i.i = indent in picas.points
r = no. of horiz. rows.

DRAW RULE VERTICAL

<DRV w, d.d, i.i>

This command draws a vertical rule starting at the indent (i.i) point and current baseline and extending downward to the depth specified by (d.d).

Any indent specified in the command, is in addition to any indent (IL, IH, TAB) in effect at the time. If the indent is not specified, then the rule starts at the original left margin or at the default indent specified in an <SRP> command.

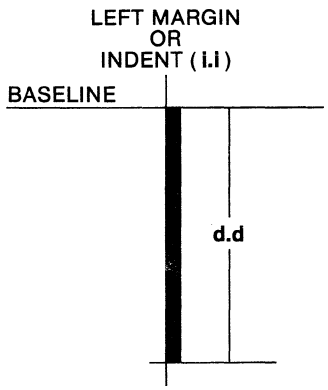
In the 8400 and 8600 typesetters, the left edge of the rule is at the left margin with the rule extending to the right of the margin. In the 8200 series the rule is centered on the margin. The depth may be omitted only if a default depth has been specified in an <SRP> command.

Upon completion of the rule command copy is positioned at the current baseline and left margin.

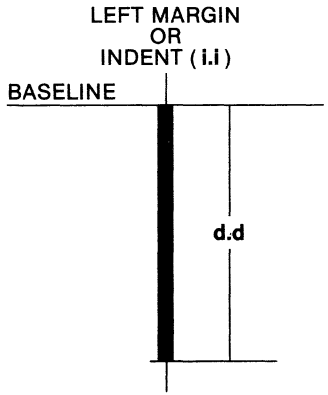
The rule indent affects only the rule position and does not affect a copy positioning indent in effect when the rule command is used.

NOTE: As the rule is positioned to the right of the indent point, if an indent of 70 picas was specified an error would result because the rule would be outside the limits of the machine (8400 and 8200 series). Therefore the indent and rule weight combined cannot exceed 70 picas (68 picas for the 8600 typesetter).

8400/8600



8200 Series



NOTE: A six-point rule was used in this example to show rule placement. A six-point rule is not available on 8200 series typesetters.

w = weight in 100ths. of a point
m.m = measure in picas.points
c = no. of vert. columns
d.d = depth in points.¼ points
i.i = indent in picas.points
r = no. of horiz. rows.

DRAW BOX

<DBX w, d.d, i.i, m.m>

This command draws a box starting at the baseline and indent (i.i) point that extends downward to the specified depth (d.d) and right to the measure (m.m) specified.

Any indent specified in the command, is in addition to any indent (IL, IH, TAB) in effect at the time. If the indent is not specified, then the box starts at the current left margin or left margin default specified in an <SRP> command.

The depth (d.d) may not be omitted unless a default has been specified in an <SRP> command.

If the measure (m.m) is omitted then the line measure in effect at the time becomes the default box measure.

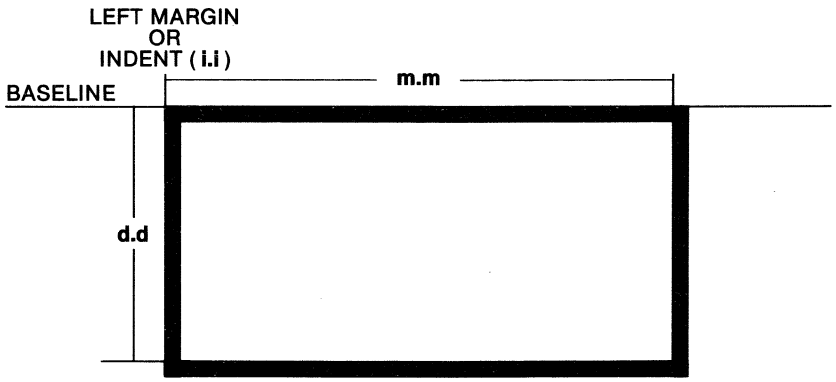
The indent and measure combined cannot exceed the current measure.

Note that both the depth and measure are exceeded by the thickness of the rule. For a box to fit within a specific measure and depth, the measure and depth specified in the command must be the desired measure and depth minus the thickness of the rule.

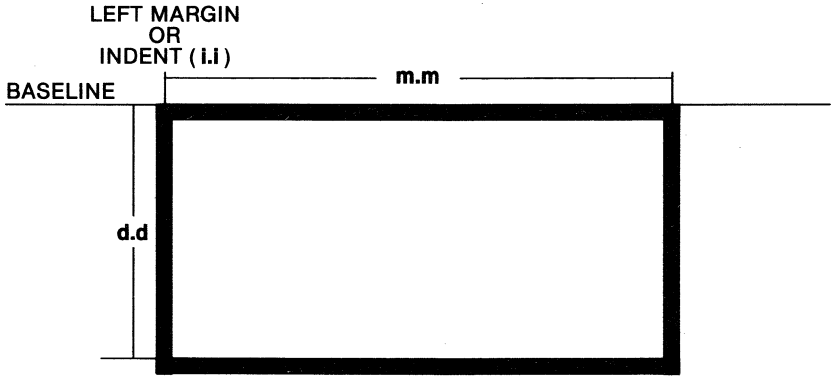
Upon completion of the box command copy is positioned at the current baseline and left margin.

NOTE: As the right rule is positioned to the right of the measure, if an indent of 60 picas and measure of 10 picas was specified, an error would result because the rule would be outside the limits of the machine (8400 and 8200 series). The indent, measure and rule weight combined cannot exceed 70 picas (68 picas for the 8600 typesetter).

8400/8600



8200 Series



NOTE: A six-point rule was used in this example to show rule placement. A six-point rule is not available on 8200 series typesetters.

w = weight in 100ths. of a point
m.m = measure in picas.points
c = no. of vert. columns
d.d = depth in points.¼ points
i.i = indent in picas.points
r = no. of horiz. rows.

DRAW MATRIX HORIZONTAL

<DMH w, r, d.d, i.i, m.m>

The Draw Matrix Horizontal command draws horizontal rules at baseline points calculated by dividing the depth (d.d) by the number of rows (r). Rules are not drawn at the original baseline or at the specified depth.

Any indent specified in the command, is in addition to any indent (IL, IH, TAB) in effect at the time. If the indent is not specified, then the matrix starts at the current left margin or left margin default specified in an <SRP> command.

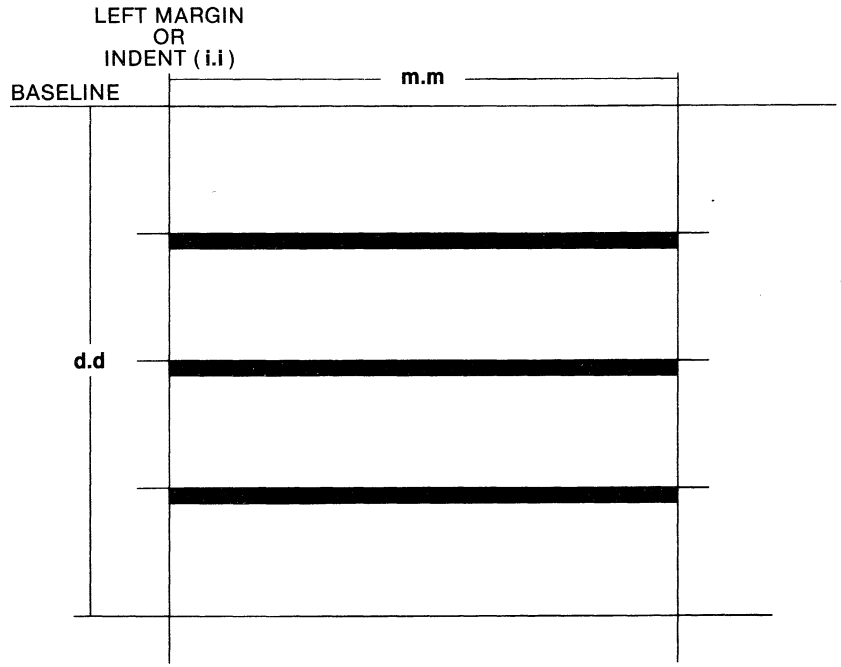
The depth (d.d) may not be omitted unless a default has been specified in an <SRP> command.

If the measure (m.m) is omitted, the line measure in effect at the time becomes the default matrix measure. The indent and measure combined cannot exceed the current measure.

In the above example (r) was specified as 4.

The rules extend downward from the calculated baseline points.

Upon completion of the matrix command copy is positioned at the original baseline and left margin.



NOTE: A six-point rule was used in this example to show rule placement. A six-point rule is not available on 8200 series typesetters.

w = weight in 100ths. of a point
m.m = measure in picas.points
c = no. of vert. columns
d.d = depth in points.¼ points
i.i = indent in picas.points
r = no. of horiz. rows.

DRAW MATRIX VERTICAL

<DMV w, c, d.d, i.i, m.m>

The Draw Matrix Vertical command draws vertical rules at margin points calculated by dividing the measure (m.m) by the number of columns (c). Rules are not drawn at the left or right margins.

Any indent specified in the command, is in addition to any indent (IL, IH, TAB) in effect at the time. If the indent is not specified, then the matrix starts at the current left margin or left margin default specified in an <SRP> command.

The depth (d.d) may not be omitted unless a default has been specified in an <SRP> command.

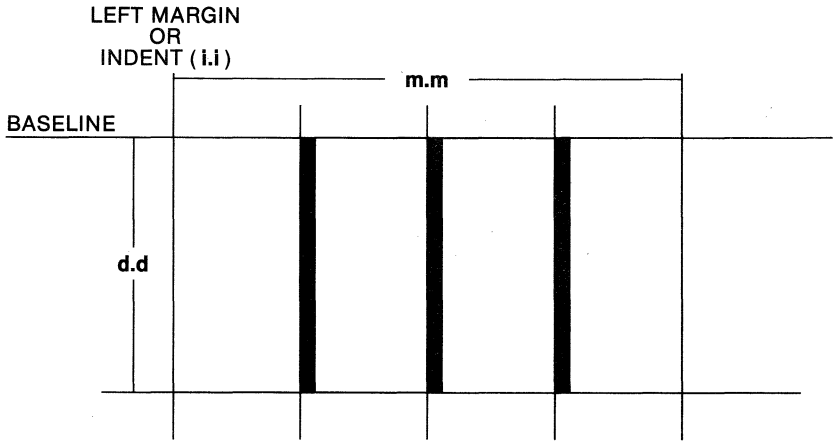
If the measure (m.m) is omitted, the line measure in effect at the time becomes the default matrix measure. The indent and measure combined cannot exceed the current measure.

In the above example (c) was specified as 4.

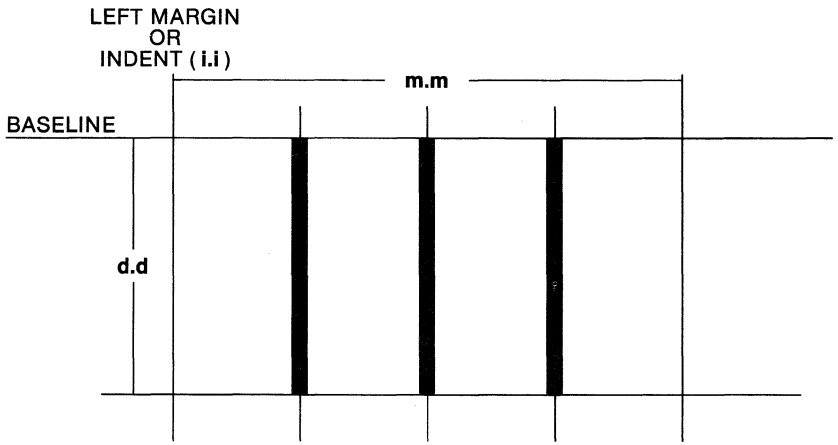
On the 8400 and 8600 typesetters, the rules extend downward from the baseline and to the left of the calculated margin points. On 8200 series photo units, the rules are centered on the margin points.

Upon completion of the matrix command, copy is positioned at the original baseline and left margin.

8400/8600



8200 Series



NOTE: A six-point rule was used in this example to show rule placement. A six-point rule is not available on 8200 series typesetters.

w = weight in 100ths. of a point
m.m = measure in picas.points
c = no. of vert. columns
d.d = depth in points.¼ points
i.i = indent in picas.points
r = no. of horiz. rows.

DRAW MATRIX GRID

<DMG w, r, c, d.d, i.i, m.m>

The Draw Matrix Grid command is a combination of the <DMH> and <DMV> commands exhibiting the same attributes as the individual commands.

Vertical rules are drawn at margin points calculated by dividing the measure (m.m) by the number of columns (c). Horizontal rules are drawn at baseline points calculated by dividing the depth (d.d) by the number of rows (r). Rules are not drawn at the top, bottom or sides of the grid. To enclose a grid a box must be drawn around the grid.

Any indent specified in the command, is in addition to any indent (IL, IH, TAB) in effect at the time. If the indent is not specified, then the matrix starts at the current left margin or left margin default specified in an <SRP> command.

The depth (d.d) may not be omitted unless a default has been specified in an <SRP> command.

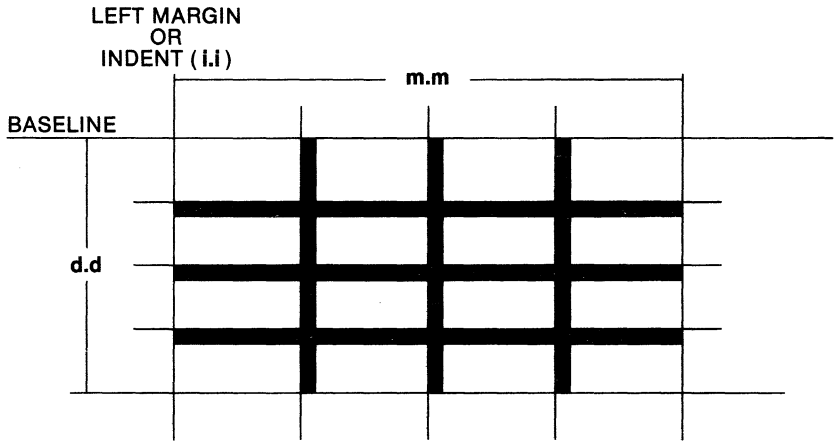
If the measure (m.m) is omitted then the line measure in effect at the time becomes the default matrix measure. The indent and measure combined cannot exceed the current measure.

In the above example (c) and (r) were specified as 4.

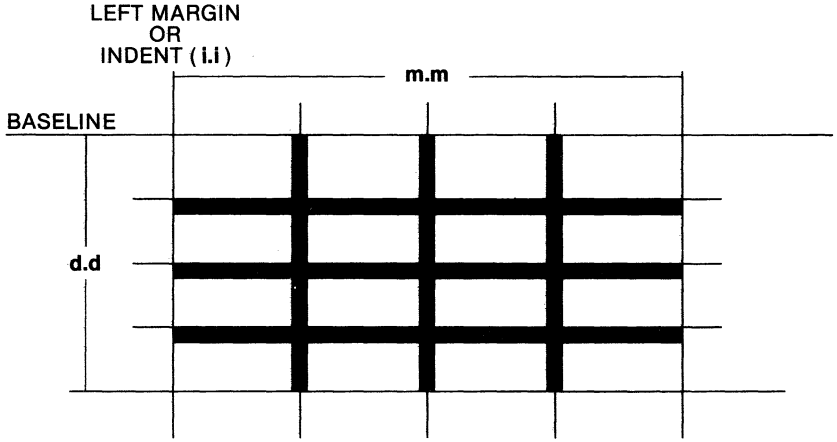
On the 8400 and 8600 typesetters, the rules extend downward from the calculated baseline points and to the right of the calculated margin points. On 8200 series photo units, the vertical rules are centered on the margin points.

Upon completion of the matrix command copy is positioned at the original baseline and left margin.

8400/8600



8200 Series



NOTE: A six-point rule was used in this example to show rule placement. A six-point rule is not available on 8200 series typesetters.

w = weight in 100ths. of a point
m.m = measure in picas.points
c = no. of vert. columns
d.d = depth in points.¼ points
i.i = indent in picas.points
r = no. of horiz. rows.

DRAW COMB

<DCB w, c, d.d, i.i, m.m>

This command draws a comblike structure beginning at the current baseline and left margin by drawing verticals upward to the value specified by d.d. The horizontal line of the comb extends down from the baseline.

The comb command divides the measure (m.m) by the number of columns (c) and draws the verticals at the calculated points and at the ends of the measure.

Any indent specified in the command, is in addition to any indent (IL, IH, TAB) in effect at the time. If the indent is not specified, then the comb starts at the current left margin or left margin default specified in an <SRP> command.

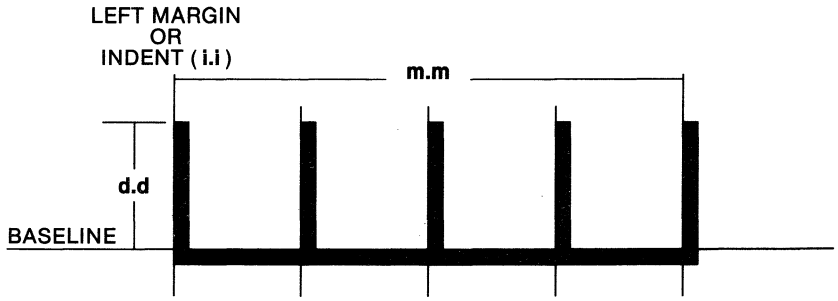
The value (d.d) may not be omitted unless a default has been specified in an <SRP> command.

If the measure (m.m) is omitted then the line measure in effect at the time becomes the default comb measure. The indent and measure combined cannot exceed the current measure.

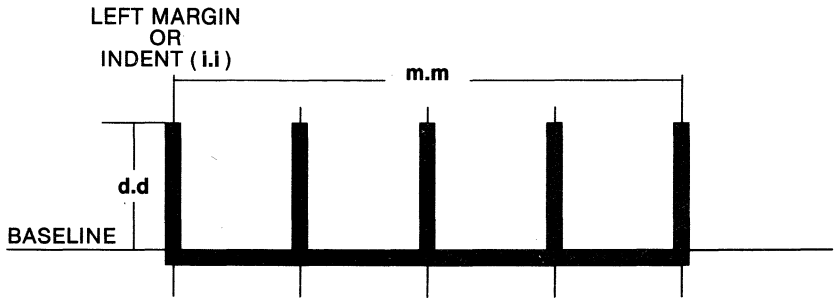
Note that the comb exceeds the measure and depth by the weight of the rule. Upon completion of the Draw Comb command copy is positioned at the baseline and left margin.

NOTE: As the rightmost rule is positioned to the right of the measure, if an indent of 60 picas and a measure of 10 picas was specified an error would result because the rule would be outside the limits of the machine (8400 and 8200 series). The indent, measure and rule weight combined cannot exceed 70 picas (68 picas for the 8600 typesetter).

8400/8600



8200 Series



NOTE: A six-point rule was used in this example to show rule placement. A six-point rule is not available on 8200 series typesetters.

w = weight in 100ths. of a point
m.m = measure in picas.points
c = no. of vert. columns
d.d = depth in points.¼ points
i.i = indent in picas.points
r = no. of horiz. rows.

ERROR MESSAGES

Rule Weight — Illegal rule weight. Legal values are:
8400 - 25, 50, 75, 100-7200
8600 - 25, 50, 75, 100-9600
8200 Series - 25, 50, 100, 200, 300

Rule Measure — Rule measure and indent combined exceed the current line length or if vertical rule, rule weight and indent exceed current measure.

Rule Depth — Maximum rule depth exceeded or rule depth exceeds multi-column depth limit. Maximum depth is 1008 points (14 inches).

Row Error — Maximum number of rows exceeded in a Matrix or Comb command. Maximum number of rows is 99.

Column Error — Maximum number of columns exceeded in Matrix command. Maximum number of columns is 99

Init RLI — <MCO> or <RLI> command has not been issued to create a 14 inch media loop at the typesetter.

CORNER ALIGNMENT OF HORIZONTAL AND VERTICAL RULES

8400/8600

If a lower right corner is drawn using the commands

<LS24><DRV200,24,2>(ret)
<DRH200,0,2>(ret)

The corner would look like this:

Note the gap that results at the corner. The solution is to specify the depth of the vertical rule as the desired depth plus the thickness of the horizontal rule it will be meeting in the corner.

<LS24><DRV200,**26**,2>(ret)
<DRH200,0,2>(ret)

8200 Series

Corners drawn on the 8200 series have automatic compensation for differences in rule placement and therefore do not need any special treatment to eliminate the gap at the lower right corner.

<LS24><DRV200,24,2>(ret)
<DRH200,0,2>(ret)

COPY PREPARATION

The following section follows the steps required to produce a form through layout, markup and keyboarding.

The sample form received from a customer may be written in pencil, ruled with pen and ink or may be a typeset form to be copied. The first step will be to layout the form on Compugraphic Ruling Layout paper (PN 61936-001). Lay the form out with a straight edge and pencil, keeping the following in mind:

Lay out the form lines directly over grid lines wherever possible. This will simplify keeping track of position when keyboarding the form for typesetting.

Try to keep adjacent vertical columns the same width. This will allow use of the insert matrix function for vertical rules instead of entering multiple vertical rule commands.

Grids need not be drawn in by hand but may be indicated by a box that shows the outside dimensions of the grid with the grid pattern indicated inside. i.e., 6 x 7 grid.

Once the form has been laid out, place the text in its proper position within the form. Try to put the baseline of the text on a grid line wherever possible. This will minimize the number of line space changes necessary to properly position the text copy. Blocks of text may be shown as blocks on the grid, with the actual text to be contained in that block on a separate sheet.

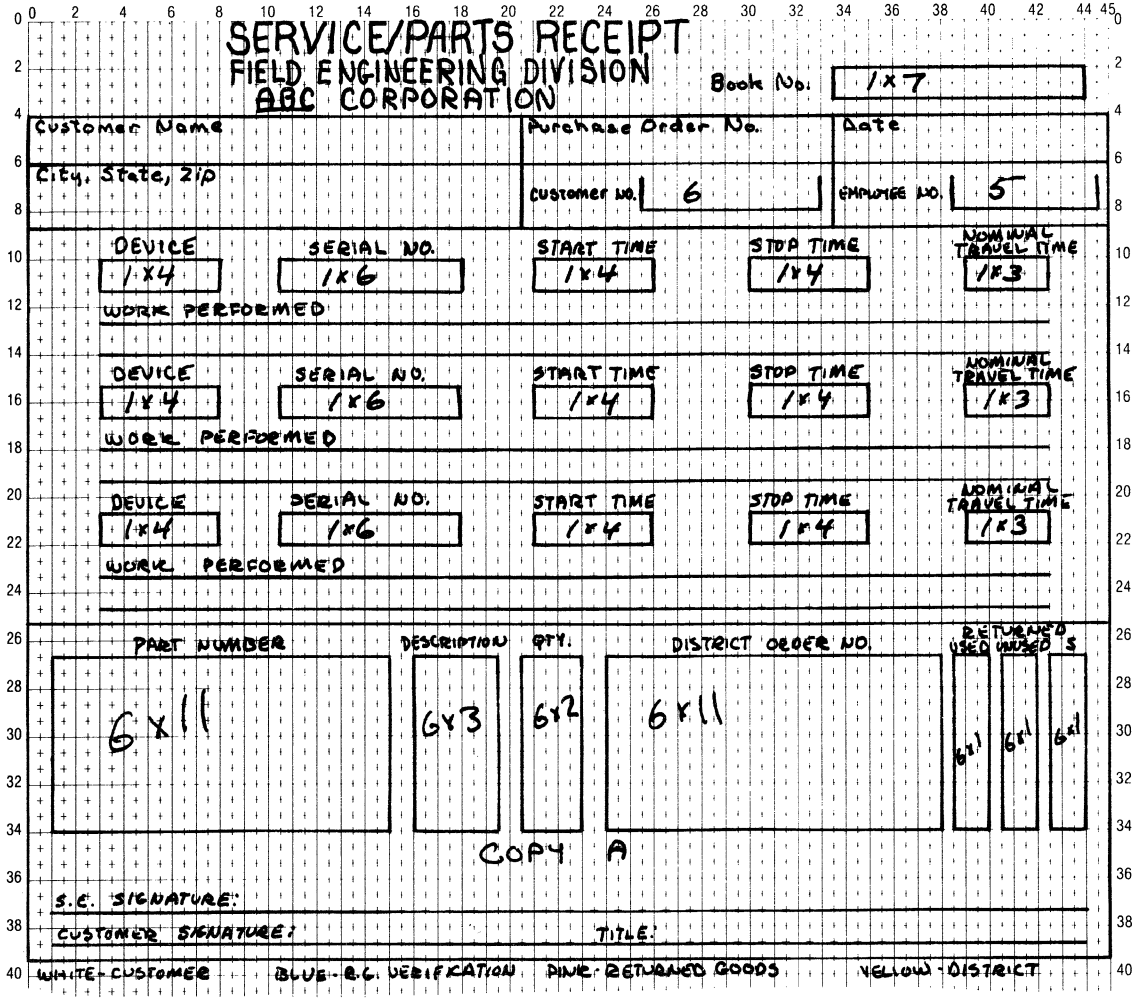
Mark up the text for size, style and composition in the normal manner. There is no need to indicate line lengths or leading values as the grid is marked in easily readable graduations both horizontally and vertically. This allows for simple calculation of tab indents and tab line measures for the positioning of text and rule placement.

The following pages contain examples of the keyboarding procedures which were used to create the sample SERVICE/PARTS RECEIPT form. Detailed instructions are provided only for those sections involving the use of ruling commands and line spacing considerations which must be made to ensure that ruling occurs at the proper depth in the job.

The layout of this job allows for easy input of both text and rules concurrently. On other forms the operator may find it simpler to input all of the rules then return to the start of the job and input the text.

NOTE: In the following example, all rule commands are followed immediately by an End Line or Return. This serves the function of isolating each command on an individual screen line making identification of the individual commands easier should the command require change if an entry error is discovered.

Sample form laid out and marked up for typesetting.



STARTING THE JOB

After the job has been laid out on the Ruling Layout Paper, you are now ready to begin input keyboarding of the form. As you keyboard, start with the topmost item to be typeset, either text or rules and take each succeeding item in order down the page.

Establish job parameters and initialize MCO or RLI: LL = 45, FT = ??, PS = 18, LS = 8. As the layout grid used has 8 point spacing between horizontal lines, a line space of 8 points is used to facilitate copy placement. Also use an ⟨SRP⟩ command to set up rule defaults. In this case ⟨SRP50,16,0⟩. A default rule weight of 50 is used because the majority of the rules in the form are ½ point rules. The depth default of 16 is used because the majority of the structures in the first half of the job have this depth.

Advance lead 16 points and enter the first line of copy followed by a return. The depth counter will indicate a depth of 2 picas.

Enter the first ruled structure; a box and a seven column vertical matrix.

⟨DBX, ,33.6,10.6⟩[EL]
⟨DMV,7, ,33.6,10.6⟩(ret)

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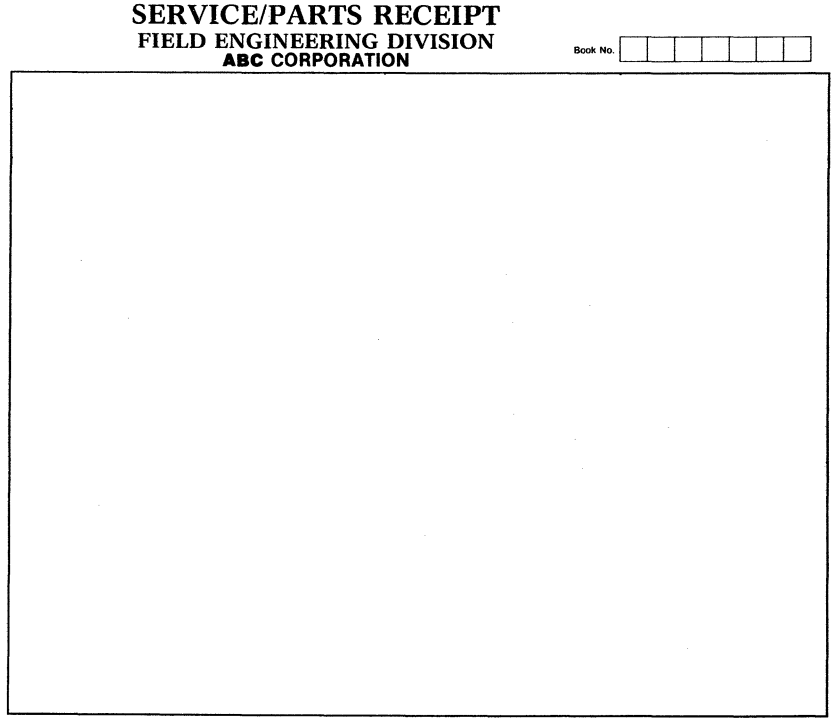
Note that the rule weight and depth was omitted in both commands as it was defined as a default by the ⟨SRP⟩ command.

Enter the next two lines of text followed by sufficient leading to advance the depth counter to 4 picas.

Enter:

⟨DBX100,424⟩[EL]

This will draw a box starting at the left margin and current baseline with a width equal to the measure and a depth of 424 points (35 picas, 4 points) with a rule weight of 1 point. The system will form the box and return to the starting baseline. The depth counter will be unchanged. The defaults used in this case were the overall line length for rule measure and the ⟨SRP⟩ default for indent. A chart is provided at the end of this manual that allows easy conversion of the grid's Pica/Point vertical markings to points for ruled structure depth entry.



Now the two verticals that drop down from the top of the box must be drawn.

<DRV100,56,20.6>EL
<DRV100,56,33.6>(ret)

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The depth counter should now read 4:08. Set up tabs for text placement and keyboard the copy followed by sufficient leading to advance the depth counter to 6:00.

Enter:

<DRH100> (ret)

to draw the 1 point horizontal rule indicated on the layout at 6 picas depth.

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NOTE: Be sure that you are not in a tab when you issue this command or the rule length will default to the tab measure.

The depth counter should indicate 6:08. The tabs set up for the previous text may now be called in for the next text placement. Follow this with sufficient leading to advance to the depth for placement of the text preceding both combs. Enter sufficient leading to advance the depth counter to 8:00.

Now draw the two combs with the commands:
<DCB,6,16,25.6,7.6>EL
<DCB,5,16,38.6,6>(ret).

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Note that the combs (unlike all other ruling structures) begin at the baseline and grow **upwards**.

The depth counter should now indicate 8:08 and the next 1 point horizontal rule may be drawn:
<DRH100>EL.

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Advance lead and set up tabs for placement of the next blocks of text followed by leading to a depth of 10 picas.

Enter the five ruled structures:

<DBX, ,3,5>$^{E}_{L}$
<DMV,4, ,3,5>$^{E}_{L}$
<DBX, ,10.6,7.6>$^{E}_{L}$
<DMV,6, ,10.6,7.6>$^{E}_{L}$
<DBX, ,21,5>$^{E}_{L}$
<DMV,4, ,21,5>$^{E}_{L}$
<DBX, ,30,5>$^{E}_{L}$
<DMV,4, ,30,5>$^{E}_{L}$
<DBX, ,39,3.6>$^{E}_{L}$
<DMV,3, ,39,3.6>(ret)

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City, State, Zip	Customer No.	Employee No.

DEVICE	SERIAL NO.	START TIME	STOP TIME	NOMINAL TRAVEL TIME

Advance lead to and set up a tab to place the next block of text followed by leading to a depth of 12:08.

Place the horizontal rules at 12:08 and 14:00 picas depth with the following:

<DRH,3,39.6>(ret)(ret)
<DRH,3,39.6>$^{E}_{L}$

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City, State, Zip	Customer No.	Employee No.

DEVICE	SERIAL NO.	START TIME	STOP TIME	NOMINAL TRAVEL TIME

WORK PERFORMED

As the portions of the form beginning at depths 15:04 and 20.8 are identical we can make use of the save block feature of the MCS. Save the block starting just after the $^{E}_{L}$ following the <DRH100> command at depth 8:08 through the end of the file at this point. Merge the block back to the file three times. At this point the depth counter will be at 24:08.

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Customer Name	Purchase Order No.	Date
City, State, Zip	Customer No.	Employee No.

DEVICE	SERIAL NO.	START TIME	STOP TIME	NOMINAL TRAVEL TIME

WORK PERFORMED

DEVICE	SERIAL NO.	START TIME	STOP TIME	NOMINAL TRAVEL TIME

WORK PERFORMED

DEVICE	SERIAL NO.	START TIME	STOP TIME	NOMINAL TRAVEL TIME

WORK PERFORMED

Advance lead 8 points and draw the horizontal rule at depth 25:04:

<DRH100>$^{E}_{L}$

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Customer Name	Purchase Order No.	Date
City, State, Zip	Customer No.	Employee No.

DEVICE | SERIAL NO. | START TIME | STOP TIME | NOMINAL TRAVEL TIME

WORK PERFORMED

DEVICE | SERIAL NO. | START TIME | STOP TIME | NOMINAL TRAVEL TIME

WORK PERFORMED

DEVICE | SERIAL NO. | START TIME | STOP TIME | NOMINAL TRAVEL TIME

WORK PERFORMED

Advance lead and define tabs for text placement of the next blocks of copy followed by sufficient leading to advance the depth counter to 26:08

As we will be drawing several boxes and matrix grids of the same depth the defaults should now be redefined:

<SRP50,88,0>$^{E}_{L}$

Enter the next seven ruled structures:

<DBX,,1,14>$^{E}_{L}$
<DMG,6,11,,1,14>$^{E}_{L}$
<DBX,,16,3.6>$^{E}_{L}$
<DMG,6,3,,16,3.6>$^{E}_{L}$
<DBX,,20.6,2.6>$^{E}_{L}$
<DMG,6,2,,20.6,2.6>$^{E}_{L}$
<DBX,,24,14>$^{E}_{L}$
<DMG,6,11,,24,14>$^{E}_{L}$
<DBX,,38.6,1.6>$^{E}_{L}$
<DMH,6,,38.6,1.6>$^{E}_{L}$
<DBX,,40.6,1.6>$^{E}_{L}$
<DMH,6,,40.6,1.6>$^{E}_{L}$
<DBX,,42.6,1.6>$^{E}_{L}$
<DMH,6,,42.6,1.6>$^{E}_{L}$

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Customer Name	Purchase Order No.	Date
City, State, Zip	Customer No.	Employee No.

DEVICE | SERIAL NO. | START TIME | STOP TIME | NOMINAL TRAVEL TIME

WORK PERFORMED

DEVICE | SERIAL NO. | START TIME | STOP TIME | NOMINAL TRAVEL TIME

WORK PERFORMED

DEVICE | SERIAL NO. | START TIME | STOP TIME | NOMINAL TRAVEL TIME

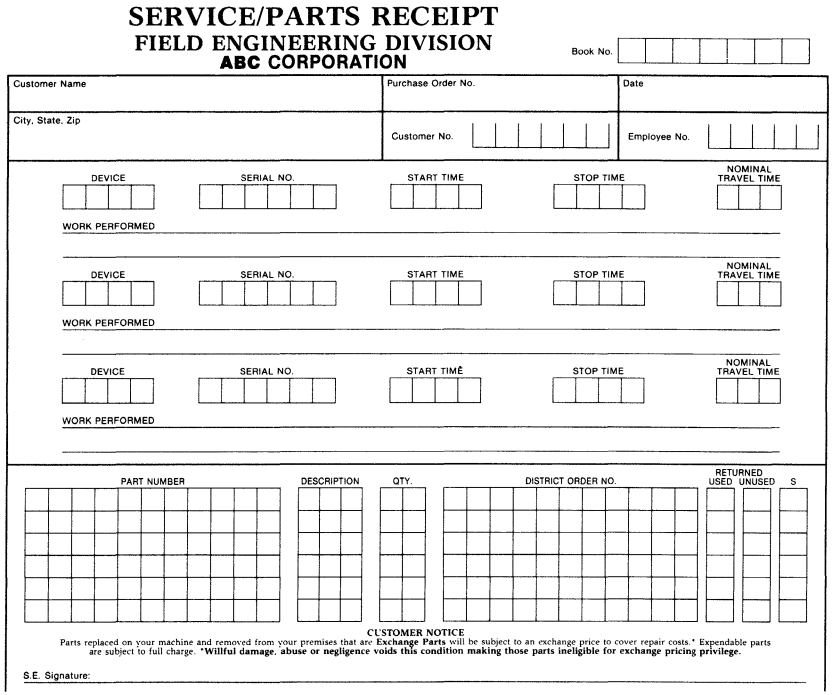
WORK PERFORMED

PART NUMBER | DESCRIPTION | QTY. | DISTRICT ORDER NO. | RETURNED USED | UNUSED | S

Set up tabs and advance lead to position next block of copy followed by advance lead to a depth of 35:04.

Enter the horizontal rule with the command:

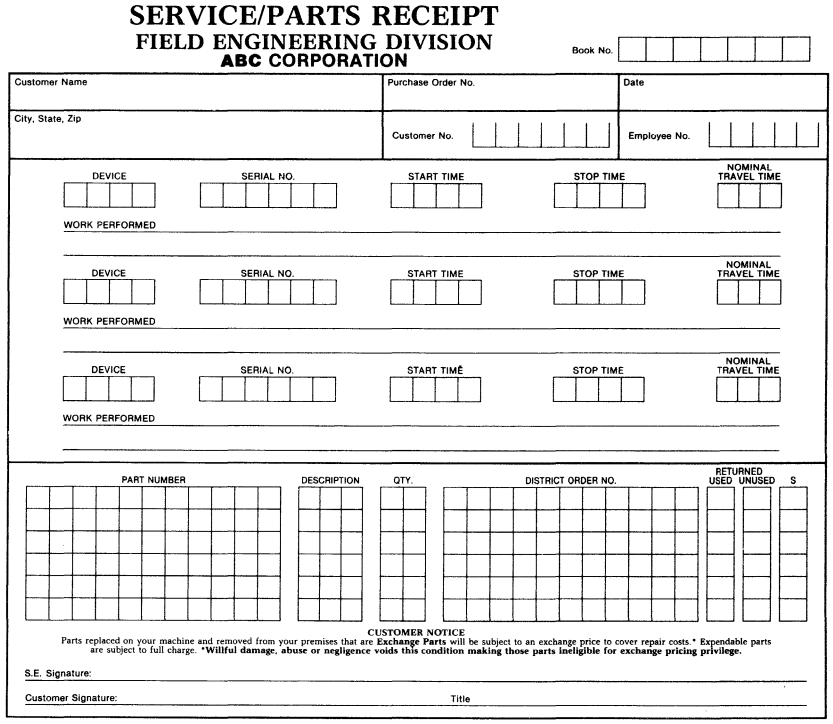
<DRH,1,44>(ret)



Advance lead and position the next block of copy followed by advance lead to a depth of 38:08.

Enter final rule with command:

<DRH,1,44>(ret).



Advance lead and position the last block of copy.

SERVICE/PARTS RECEIPT

FIELD ENGINEERING DIVISION

ABC CORPORATION

Book No.

Customer Name	Purchase Order No.	Date
City, State, Zip	Customer No.	Employee No.

DEVICE | SERIAL NO. | START TIME | STOP TIME | NOMINAL TRAVEL TIME

WORK PERFORMED

DEVICE | SERIAL NO. | START TIME | STOP TIME | NOMINAL TRAVEL TIME

WORK PERFORMED

DEVICE | SERIAL NO. | START TIME | STOP TIME | NOMINAL TRAVEL TIME

WORK PERFORMED

PART NUMBER	DESCRIPTION	QTY.	DISTRICT ORDER NO.	RETURNED USED	RETURNED UNUSED	S

CUSTOMER NOTICE

Parts replaced on your machine and removed from your premises that are **Exchange Parts** will be subject to an exchange price to cover repair costs.* Expendable parts are subject to full charge. ***Willful damage, abuse or negligence voids this condition making those parts ineligible for exchange pricing privilege.**

S.E. Signature:

Customer Signature: Title

White-Customer Blue-R.G Verification Pink-Returned Goods Yellow-District

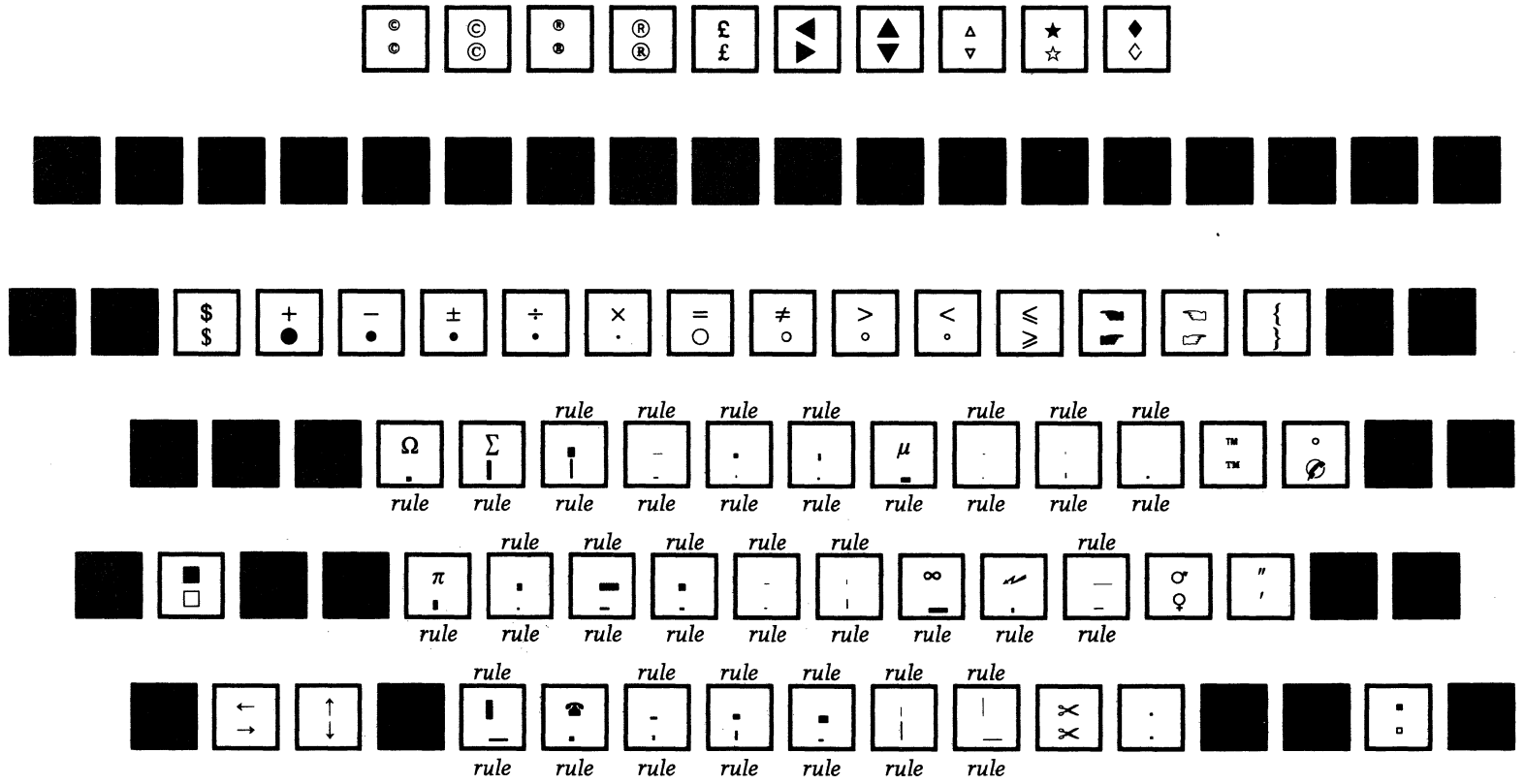
Pica/Point to Point Conversion Table

PICAS	POINTS 0	1	2	3	4	5	6	7	8	9	10	11
0	0	1	2	3	4	5	6	7	8	9	10	11
1	12	13	14	15	16	17	18	19	20	21	22	23
2	24	25	26	27	28	29	30	31	32	33	34	35
3	36	37	38	39	40	41	42	43	44	45	46	47
4	48	49	50	51	52	53	54	55	56	57	58	59
5	60	61	62	63	64	65	66	67	68	69	70	71
6	72	73	74	75	76	77	78	79	80	81	82	83
7	84	85	86	87	88	89	90	91	92	93	94	95
8	96	97	98	99	100	101	102	103	104	105	106	107
9	108	109	110	111	112	113	114	115	116	117	118	119
10	120	121	122	123	124	125	126	127	128	129	130	131
11	132	133	134	135	136	137	138	139	140	141	142	143
12	144	145	146	147	148	149	150	151	152	153	154	155
13	156	157	158	159	160	161	162	163	164	165	166	167
14	168	169	170	171	172	173	174	175	176	177	178	179
15	180	181	182	183	184	185	186	187	188	189	190	191
16	192	193	194	195	196	197	198	199	200	201	202	203
17	204	205	206	207	208	209	210	211	212	213	214	215
18	216	217	218	219	220	221	222	223	224	225	226	227
19	228	229	230	231	232	233	234	235	236	237	238	239
20	240	241	242	243	244	245	246	247	248	249	250	251
21	252	253	254	255	256	257	258	259	260	261	262	263
22	264	265	266	267	268	269	270	271	272	273	274	275
23	276	277	278	279	280	281	282	283	284	285	286	287
24	288	289	290	291	292	293	294	295	296	297	298	299
25	300	301	302	303	304	305	306	307	308	309	310	311
26	312	313	314	315	316	317	318	319	320	321	322	323
27	324	325	326	327	328	329	330	331	332	333	334	335
28	336	337	338	339	340	341	342	343	344	345	346	347
29	348	349	350	351	352	353	354	355	356	357	358	359
30	360	361	362	363	364	365	366	367	368	369	370	371
31	372	373	374	375	376	377	378	379	380	381	382	383
32	384	385	386	387	388	389	390	391	392	393	394	395
33	396	397	398	399	400	401	402	403	404	405	406	407
34	408	409	410	411	412	413	414	415	416	417	418	419
35	420	421	422	423	424	425	426	427	428	429	430	431
36	432	433	434	435	436	437	438	439	440	441	442	443
37	444	445	446	447	448	449	450	451	452	453	454	455
38	456	457	458	459	460	461	462	463	464	465	466	467
39	468	469	470	471	472	473	474	475	476	477	478	479
40	480	481	482	483	484	485	486	487	488	489	490	491
41	492	493	494	495	496	497	498	499	500	501	502	503
42	504	505	506	507	508	509	510	511	512	513	514	515

PICAS	POINTS 0	1	2	3	4	5	6	7	8	9	10	11
43	516	517	518	519	520	521	522	523	524	525	526	527
44	528	529	530	531	532	533	534	535	536	537	538	539
45	540	541	542	543	544	545	546	547	548	549	550	551
46	552	553	554	555	556	557	558	559	560	561	562	563
47	564	565	566	567	568	569	570	571	572	573	574	575
48	576	577	578	579	580	581	582	583	584	585	586	587
49	588	589	590	591	592	593	594	595	596	597	598	599
50	600	601	602	603	604	605	606	607	608	609	610	611
51	612	613	614	615	616	617	618	619	620	621	622	623
52	624	625	626	627	628	629	630	631	632	633	634	635
53	636	637	638	639	640	641	642	643	644	645	646	647
54	648	649	650	651	652	653	654	655	656	657	658	659
55	660	661	662	663	664	665	666	667	668	669	670	671
56	672	673	674	675	676	677	678	679	680	681	682	683
57	684	685	686	687	688	689	690	691	692	693	694	695
58	696	697	698	699	700	701	702	703	704	705	706	707
59	708	709	710	711	712	713	714	715	716	717	718	719
60	720	721	722	723	724	725	726	727	728	729	730	731
61	732	733	734	735	736	737	738	739	740	741	742	743
62	744	745	746	747	748	749	750	751	752	753	754	755
63	756	757	758	759	760	761	762	763	764	765	766	767
64	768	769	770	771	772	773	774	775	776	777	778	779
65	780	781	782	783	784	785	786	787	788	789	790	791
66	792	793	794	795	796	797	798	799	800	801	802	803
67	804	805	806	807	808	809	810	811	812	813	814	815
68	816	817	818	819	820	821	822	823	824	825	826	827
69	828	829	830	831	832	833	834	835	836	837	838	839
70	840	841	842	843	844	845	846	847	848	849	850	851
71	852	853	854	855	856	857	858	859	860	861	862	863
72	864	865	866	867	868	869	870	871	872	873	874	875
73	876	877	878	879	880	881	882	883	884	885	886	887
74	888	889	890	891	892	893	894	895	896	897	898	899
75	900	901	902	903	904	905	906	907	908	909	910	911
76	912	913	914	915	916	917	918	919	920	921	922	923
77	924	925	926	927	928	929	930	931	932	933	934	935
78	936	937	938	939	940	941	942	943	944	945	946	947
79	948	949	950	951	952	953	954	955	956	957	958	959
80	960	961	962	963	964	965	966	967	968	969	970	971
81	972	973	974	975	976	977	978	979	980	981	982	983
82	984	985	986	987	988	989	990	991	992	993	994	995
83	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007
84	1008	–	–	–	–	–	–	–	–	–	–	–

Ruling and Pi Font Keyboard Layout

UPPER/LOWER CASE PRECEDENT CHARACTERS



SHIFT CHAR. / UNSHIFT CHAR. — Key Representation

Function Key

NOTE: Rule segments (identified by *rule*) are to be used in ruling commands *ONLY*.
All other characters may be accessed through the designated keys.

200 Ballardvale Street
Wilmington, MA 01887